Dust Suppression and Soil Stabilization Products

Drew Trenholm, MRI

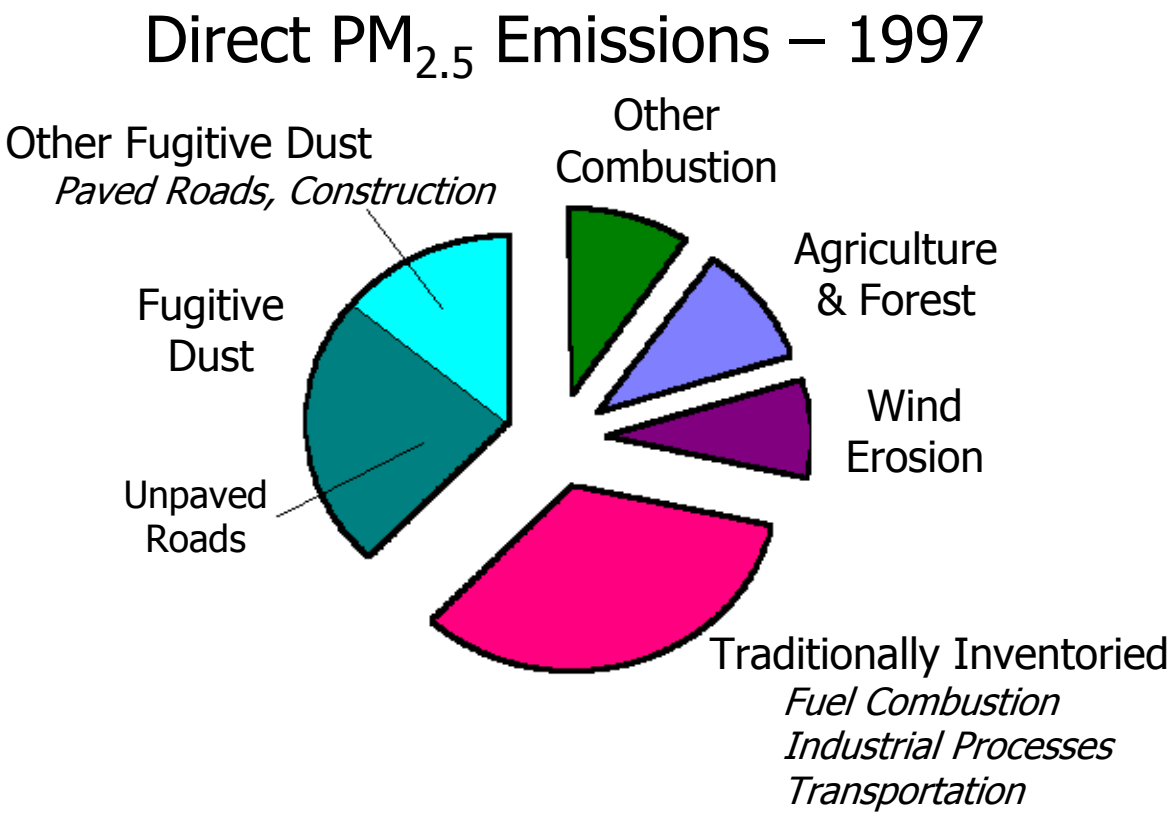
March 13, 2002

Background

Why verify dust suppressants and soil stabilizers?

- 1.5 million miles of unpaved roads in U.S.
- Dust generated from unpaved roads contributes to fine PM air pollution issues
- New products are coming onto the market
- States and counties want demonstrations

$PM_{2.5}$ Emissions



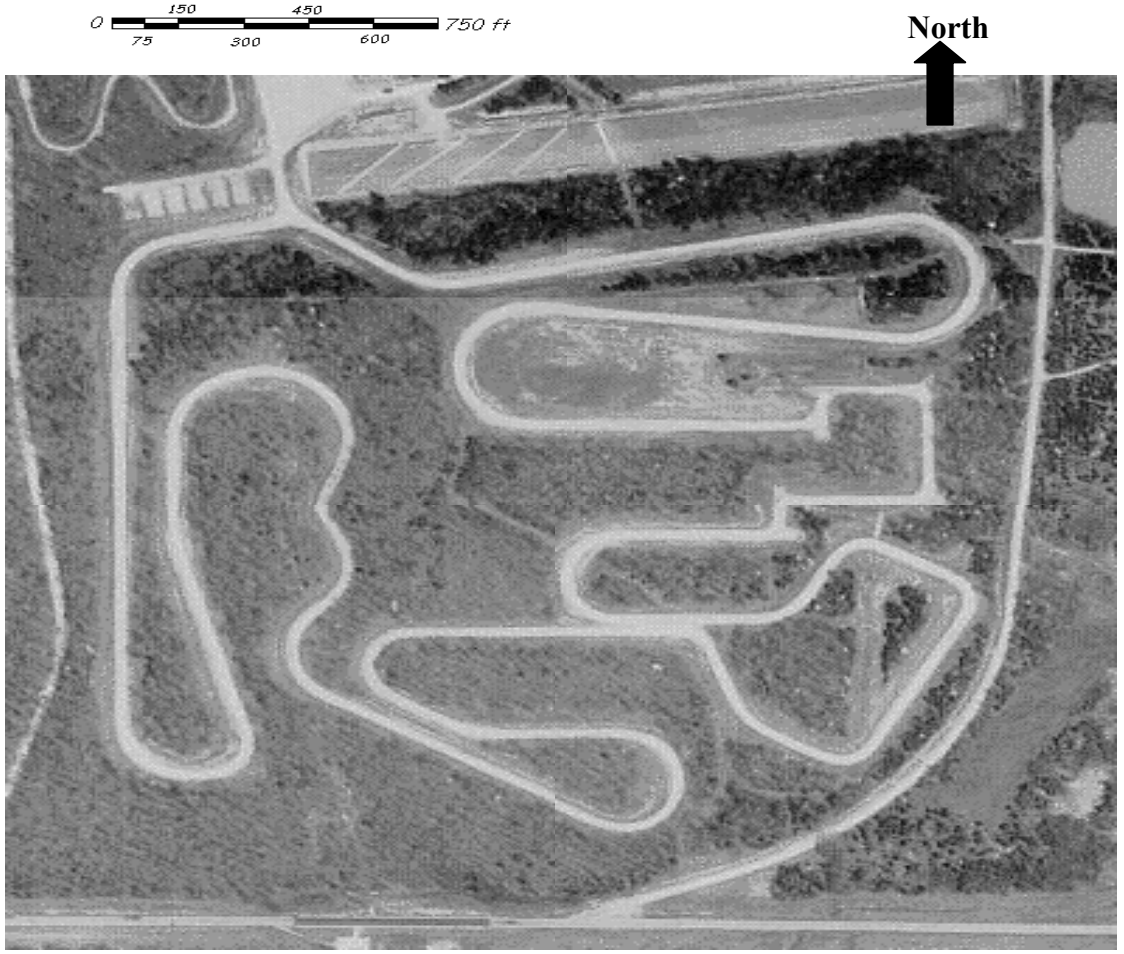
Joint Program with CERF

- CERF is research affiliate of American Society for Civil Engineers
  - EvTEC – ETV program
  - HITEC – Highway Innovative Technology Evaluation Center
- Joint protocol
- APCT Center conducting verification testing

Fall 2001 Fort Leonard Wood Test

- Air pollutant dust emissions only
- Correlating mobile dust sampler with profiling
- Seven products – three vendors
- Four test series over 3 months
- Completed field work in January
- Currently
  - Completing data analyses and QA review
  - Started drafting reports

Fort Leonard Wood Test Site



Dust Suppressant Application

Profiling Towers

Mobile Dust Sampler

What We Learned – Mobile Dust Sampler

- Single test runs poor precision
- Mean of multiple test runs "__% with 90% confidence
- Can do a test run in an hour

What We Learned – Protocol

- Removed Method 9 VE observations
- Removed "watering" baseline
- Removed uncommon, expensive toxicity tests
- Made laboratory tests of products optional
- Vendor can provide laboratory analyses

Next Verification Tests

- Tests will run 12 months
- Include control efficiency tests, dust suppression functionality and soil stabilization testing options
- Testing with Mobile Dust Sampler only
- Sites are
  - Maricopa County, Arizona
  - Fort Leonard Wood, Missouri

Schedule

Site survey and vendor meetings	March
Product application uncontrolled testing	May – June
Control efficiency tests	Quarterly
Verification statements/reports	Summer 2003